Practice Exercises N 1

(Operators and Control Structures)

Exercise 1: What do these programs display?

```c
# include <stdio.h>
main()
{ int x = 5, y, z, r ;
y = x++; z=++y;
 printf(" y=%d  z=%d  x= %d \t",y, z, x);
 x = 2, y = 4, z = 5;
r = (x < 6 || y ++ < 3) && (z++ == 8) ;
printf("r = %d  y=%d   z=%d   x=%d ",r, y,  z, x);
x = 2, y = 4, z = 5;
r = (++x > 6 || y ++ < 3) && (z++ == 8) ;
printf("r = %d  y=%d   z=%d   x=%d ",r, y,  z, x);
}
```

```c
#include <stdio.h>
main()
{
int x=10 , y=5 , z=10 , r ;
r=x==(y=z) ;
printf( "x=%d\t  y=%d\t z=%d\t r=%d\n", x,y,z,r);
r=(x--<y) && (++z!=x);
printf( "x=%d\t  y=%d\t z=%d\t r=%d\n", x,y,z,r);
r=(x-->y) || (++z!=x);
printf( "x=%d\t  y=%d\t z=%d\t r=%d\n", x,y,z,r);
x=y=z=7 ; x+=y+=z ;
printf( "x=%d\t  y=%d\t z=%d\n ", x,y,z) ;
z=x<y ? x++ :y++ ;
printf( "x=%d\t  y=%d\t z=%d\n ", x,y,z) ;
z=x>y ? x++ : y++ ;
printf( "x=%d\t  y=%d\t z=%d\n ", x,y,z) ;
}
```

Exercise 2

Write a C program that takes an integer as input and checks whether it is positive, negative, or zero. Display the appropriate message accordingly.

Exercise 3

Write a program that checks whether a given year is a leap year or not.

Exercise 4

Write a C program to calculate the factorial of a given non-negative integer.

Exercise 5
Write a C program that displays the multiplication table of a user-input number

Exercise 6

Write a program that:

 - Determine all the divisors of user-input integer greater than 1.
 - Determine whether the input number is prime.

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